



POPULATION COURSE SYLLABUS HEALTH

Quality of Health Care PH/ISyE 703

Spring 2009

Tuesday 4:30 p.m. – 7 p.m.

Room 758 WARF Building (610 N. Walnut St.)

University of Wisconsin-Madison

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| Course Organizer: | Maureen Smith, MD, PhD |
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| Email: | maureensmith@wisc.edu |
| Office hours: | Generally available following class, or by appointment |
| Prerequisites: | No formal prerequisites, but instructor consent is required to enroll |
| Instructors: | Maureen Smith, MD, PhD Pascale Carayon, PhD Chris Crnich, MD Tosha Wetterneck, MD, MS |

Course Objectives

The objectives of this course are:

- 1) To review the conceptualization and measurement of quality of healthcare and patient safety.
- 2) To illustrate basic concepts and methods in quality improvement as applied to current issues in healthcare.
- 3) To understand the diverse perspectives that can be used to address quality and safety issues in different healthcare organizations.

Course Readings

A packet of required readings has been organized by weekly reading assignments and will be provided on CD-ROM. These readings are also available on the course [Learn@UW](#) site. Staying current with assigned readings and participation in class discussions is required.

Course Requirements and Evaluation

Course Modules (150 possible points for each of 4 modules = 600 possible points)

- The course is composed of four 3-week modules. Each module is worth 150 points (detailed below).
Module 1 – Conceptualization and Measurement – A Clinical Perspective
Module 2 – Conceptualization and Measurement – A Systems Engineering Perspective
Module 3 – Quality Improvement by Changing Provider Behavior
Module 4 – Technological Design and Implementation
- 50 points per module - your attendance and participation in class. Students are expected to prepare for class by completing all assigned readings in advance. The basis for the participation grade is the amount and quality of effort put forth by each student to provide thoughtful and constructive commentary.
- 100 points per module - your grade on a mini-paper.
 - ✓ For each Module, you will choose a topic from the list of possible paper topics below. Using your knowledge gained from that module, write a mini-paper (~1000 words) addressing the questions posed. Use the references provided or any other references of your choosing. Your papers will be submitted online.
 - ✓ For Module 2, your paper topic must be different from the topic for Module 1.
 - ✓ For subsequent Modules, you may repeat topics or choose different ones.
- No points will be given for papers received after the due date (final class of each module).

Final Group Project (300 possible points)

- The final group poster and presentation is an analysis of an attempt to improve the quality of health care. Groups of students will be determined by the course faculty and will consist of students from different academic disciplines (i.e., 1 health care student paired with 1 engineering student). During class the groups are requested to exchange phone numbers and e-mail addresses and to schedule meeting times. The timeline and detailed information on the group project are located below.
- The objectives of the group poster and presentation are to:
 1. Identify course principles that apply to the problem
 2. Identify how different principles interact and conflict
 3. Identify alternative approaches to solving the problem
 4. Improve the ability to research the primary literature on a specified subject;
 5. Evaluate methodologies, technologies, and experiments serving as the basis of research;
 6. Determine how pertinent data and analyses lead to conclusions reached by experts;
 7. Equip students in the concise preparation of data for presentation in a poster format.
- Each poster should contain the following components (use charts or graphs when possible):
 1. Description of the problem that the process was targeted to address.
 2. Description of the process adopted by the organization or individual.

3. Extraction of the core principles that appear to have informed the process. Describe as a bulleted list (with sufficient detail to allow someone who has not taken the class to understand your points). Avoid jargon. Reference supporting literature for these principles.
 4. Discussion of how these principles interact or potentially conflict with one another. Use the literature to support your discussion of how these principles interact or conflict.
 5. Discussion of other ways to approach the process for this problem. Reference these approaches in the literature.
 6. Identification of core principles relevant to these other approaches. Describe as a bulleted list. Reference supporting literature for these principles.
 7. Discussion of what you would have done if faced with this problem. Describe how your approach would differ. Reference supporting literature for your approach.
 8. A complete bibliography of papers referenced in the poster should be included.
- The final reporting of the grade is a simple total of three components (faculty evaluation of the poster, peer evaluation, and faculty evaluation of the individual student). Only the total grade is reported--since the peer evaluation is anonymous, we cannot reveal any of the grades for the three components. Students strongly support this policy.
 - ✓ Faculty evaluation of poster: All faculty will evaluate posters for the purpose of assigning a group grade. Each faculty independently grades the posters on a basis of 0-100 points (with 100 being highest). These evaluations and questions regarding the posters must be completed before the oral defense. The group grade for the poster is arrived at by consensus discussion and is awarded to each student in the group.
 - ✓ Peer evaluation: Each student is required to evaluate every other member of his/her group. This peer evaluation is worth 100 points. Each student must apportion a fixed number of points to her/his peers. It is the students' responsibility to determine what criterion to use in this apportioning of points. Some of the criteria students may use could be time spent, useful discussion, work on research, work on layout, and general organizational skills. The peer evaluation form will be posted on Learn@UW. The form must be completed and returned at the time of your oral exam (it is your ticket to the exam).
 - ✓ Faculty evaluation of individual student: Each student defends the poster individually. Other students cannot attend the oral. The exam consists of a series of questions that may be drawn from any material on the poster and other material pertaining to an understanding of the data and concluding statements. Each oral is 5-7 minutes per student. Each faculty independently evaluates the student on a basis of 0-100. The grade for the defense is arrived at by consensus discussion.

Mini-Paper and Group Project Topics

Important Note: References below are given only as a starting point for your research. You may use any references of your choosing to address the problem and evaluate the solution.

- 1) *Problem:* 31% of Americans who have hypertension are not receiving treatment.
Organization involved: A local health plan.
Possible solution: Medical record review and feedback of performance to individual primary care physicians, comparing the percentage of their hypertensive patients who are receiving treatment to the average percentage of hypertensive patients receiving treatment across the health plan.
Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

Sennett, C. (2000). Implementing the new HEDIS hypertension performance measure. *Manag Care*, 9(4 Suppl), 2-17.
- 2) *Problem:* The use of medical abbreviations contributes significantly to medication errors.
Organization involved: A local hospital
Possible solution: Large colorful advertisements place in obvious locations around the hospital urging providers not to use medical abbreviations.
Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

Lesar TS, Briceland L, Stein DS. Factors related to errors in medication prescribing. *Jama*. 1997;277(4):312-7.

Joint Commission on Accreditation of Healthcare Organizations. (2001, September 2001). Medication errors related to potentially dangerous abbreviations. Joint Commission on Accreditation of Healthcare Organizations. Retrieved Dec 15, 2002 from the World Wide Web: http://www.jointcommission.org/SentinelEvents/SentinelEventAlert/sea_23.htm
- 3) *Problem:* Information sharing among primary care, anesthesiology, and surgical team members is critical for optimal care in the ambulatory surgery setting, but a significant number of patients arrive on the day of surgery without complete information available to their surgical team.
Organization involved: A local ambulatory surgery center
Possible solution: Create an electronic template that must be submitted by the surgeon at least 24 hours in advance of the surgery.
Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

Coleman, E. A., & Berenson, R. A. (2004). Lost in transition: Challenges and opportunities for improving the quality of transitional care. *Annals of Internal Medicine*, 141(7), 533-536.

Carayon, P., Schultz, K. and Hundt, A.S. "Wrong site surgery in outpatient settings: The case for a human factors system analysis of the outpatient surgery process" *The Joint Commission Journal on Quality and Safety*, July 2004, vol.20, no.7, 405-410.

Schultz, K., Carayon, P., Hundt, A.S. and Springman, S.R. "Care transitions in the outpatient surgery preoperative process: Facilitators and obstacles to information flow and their consequences" *Cognition, Technology and Work*, 2007, 9(4): 219-231.
- 4) *Problem:* Patients in ambulatory surgery settings are often discharged within a few hours of surgery, allowing potentially preventable complications to occur in the home and leading to subsequent hospital readmission.
Organization involved: A local ambulatory surgery center.

Possible solution: Identify high-risk patients for additional telephone follow-up at regular intervals.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

Reid, J. H. (1997). Meeting the informational needs of patients in a day surgery setting—an exploratory level study. *British Journal of Theatre Nursing.*, 7(4), 19-24.

- 5) *Problem:* Many patients hospitalized with a heart attack do not receive life-saving drug therapy on discharge.

Organization involved: A local hospital.

Possible solution: Develop and implement a guideline for heart attack patients in your hospital that includes the recommendation to discharge patients on these drugs.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

Mehta, R. H., et. Al. (2002). Improving quality of care for acute myocardial infarction: The Guidelines Applied in Practice (GAP) Initiative. *Jama.*, 287(10), 1269-1276.

- 6) *Problem:* Approximately two-thirds of kidney dialysis patients with hyperlipidemia do not receive hyperlipidemic drugs.

Organization involved: A local kidney dialysis center.

Possible solution: Organize an in-house workshop for all physicians associated with the kidney dialysis center to educate them in the necessity of conducting laboratory testing to identify hyperlipidemia and the importance of drug therapy for kidney dialysis patients.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

Fox CS, Longenecker JC, Powe NR, et al. Undertreatment of hyperlipidemia in a cohort of United States kidney dialysis patients. *Clin Nephrol.* 2004;61(5):299-307.

- 7) *Problem:* 50% of all antibiotics for upper respiratory infection are unnecessary.

Organization involved: A local group of primary care physicians.

Possible solution: Large colorful advertisements placed in the clinic waiting room to educate patients about the inappropriateness of antibiotics for viral infections.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

Mangione-Smith R, McGlynn EA, M N Elliott et al. The relationship between perceived parental expectations and pediatrician antimicrobial prescribing behavior. *Pediatrics.* 1999;103:711-717.

Gonzales R, Steiner J, Lum A, Barrett P. Decreasing antibiotic use in ambulatory practice: Impact of a multidimensional intervention on the treatment of uncomplicated acute bronchitis in adults. *JAMA.* 1999;28:1512-1519.

- 8) *Problem:* Four out of every 1000 drugs ordered in a hospital setting are administered inappropriately (wrong route, wrong dose, wrong patient, wrong time, wrong drug) (Lesar 1997).

Organization involved: A local hospital.

Possible solution: Implementation of a bar-coding medication administration system.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

Bates DW, Cullen DJ, Laird N, et al. Incidence of adverse drug events and potential adverse drug events. Implications for prevention. ADE Prevention Study Group. *Jama.* 1995;274(1):29-34.

Lesar TS, Briceland L, Stein DS. Factors related to errors in medication prescribing. *Jama.* 1997;277(4):312-7.

Patterson, E. Improving Patient Safety by Identifying Side Effects from Introducing Bar Coding in Medication Administration, *J. Am Med Inform Assoc*, 9, 540-553. 2002.

Koppel, R., Wetterneck, T., Telles, J. L., & Karsh, B.-T. (2008). Workarounds to barcode medication administration systems: Their occurrences, causes, and threats to patient safety. *Journal of the American Medical Informatics Association*, M2616.

Carayon, P., Wetterneck, T.B., Hundt, A.S., Ozkaynak, M., DeSilvey, J., Ludwig, B., Ram, P. and Rough, S.S. "Evaluation of nurse interaction with Bar Code Medication Administration (BCMA) technology in the work environment" *Journal of Patient Safety*, 2007, 3(1): 34-42.

9) *Problem:* 1-2% of physician prescriptions are illegible.

Organization involved: A local outpatient clinic associated with a large teaching hospital.

Possible solution: Implementation of a computerized physician order entry system.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

Gupta AK, Cooper EA, Feldman SR, Fleischer AB, Jr., Balkrishnan R. Analysis of factors associated with increased prescription illegibility: results from the National Ambulatory Medical Care Survey, 1990-1998. *Am J Manag Care*. 2003;9(8):548-52

Meyer TA. Improving the quality of the order-writing process for inpatient orders and outpatient prescriptions. *Am J Health Syst Pharm*. 2000;57 Suppl 4:S18-22.

Aranow M. What works: clinical information systems. Order entry rules. Healthcare enterprise achieves physician acceptance, reduced medication errors and improved patient outcomes through CIS and CPOE technology. *Health Management Technology*. 23(7):34, 38, 2002 Jul.

Scanlon, M. Computer physician order entry and the real world: We're only humans. *Joint Commission Journal on Quality and Safety*, 30(6), 342-246.

Karsh, B. Beyond usability: designing effective technology implementation systems to promote patient safety. *Quality and Safety in Healthcare*, 13(5).388-394. 2004.

10) *Problem:* The information in paper medical charts is not easily accessible by all providers involved in a patient's care, leading to significant safety and quality problems in health care.

Organization involved: A local health system.

Possible solution: Implementation of a system-wide (inpatient and outpatient) electronic medical record.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

Laerum H, Ellingsen G, Faxvaag A. Doctors' use of electronic medical records systems in hospitals: cross sectional survey. *BMJ*. 323(7325):1344-8, 2001 Dec 8.

Makoul G, Curry RH, Tang PC. The use of electronic medical records: communication patterns in outpatient encounters. [Evaluation Studies. Journal Article] *Journal of the American Medical Informatics Association*. 8(6):610-5, 2001 Nov-Dec.

<http://www.jamia.org/cgi/reprint/8/6/610.pdf>

Karsh, B, Beasley, J. W., Hagenauer, M-H. Are electronic medical records associated with improved perceptions of the quality of medical records, working conditions, or quality of working life? *Behaviour and Information Technology*, 23(5), 327-335. 2004.

Hippisley-Cox, J., Pringle, M., Cater, R., Wynn, A., Hammersley, V. and Coupland, C. The electronic patient record in primary care – regression or progression? A cross sectional study. *British Medical Journal*, 326, 1439 –1443. 2003.

Lawler, F., Cacy, J.R., Viviani, N., Hamm, R.M. and Cobb, S.W. Implementation and termination of a computerized medical information system. *Journal of Family Practice*, 42(3), 233 – 236. 1996.

Legler, J.D. and Oates, R. Patients reactions to physician use of a computerized medical record system during clinical encounters. *Journal of Family Practice*, 37(3), 241 – 244. 1993.

Wager, K.A., Lee, F.W., White, A.W., Ward, D.M., Ornstein, S.A. Impact of an electronic medical record system on community-based primary care practices. *Journal of the American Board of Family Practice*, 13, 338 – 348. 2000.

Timeline for Group Project

- Tue, Feb 3** Groups are determined and posted on the Learn@UW site. During class the groups are requested to exchange phone numbers and e-mail addresses and to schedule meeting times.
- Fri, Feb 13** Groups choose a poster topic from the available list of topics. E-mail the poster topic to the course organizer (Dr. Smith).
- Tue, Feb 17** Groups are assigned faculty advisors. Students begin data collection; make appointments with library staff as necessary. Within the next several weeks, students must analyze the project case and complete a literature search.
- Fri, Mar 13** Students submit a rough draft of several items from the required poster content to their advisor for critique through Learn@UW. The groups must address the following areas and must include a draft bibliography.
1. Description of the problem that the process was targeted to address.
 2. Description of the process adopted by the organization or individual. Reference supporting literature for this process.
 3. Discussion of other ways to approach the process for this problem. Reference these approaches in the literature.
 4. A complete bibliography of papers referenced should be included.
- Fri, Mar 13** The format for posters is posted on the Learn@UW site.
- Fri, Apr 3** Students submit a rough draft of their poster and their final bibliography to their advisor through Learn@UW. Size limitations (4'x 3' w x h) should be adhered to.
- Fri, Apr 24** Students are assigned times for oral defense.
- Tue, May 5** The group project is presented and defended. Each student presents their completed evaluation of fellow group members as a ticket to the exam. **The evaluation form must be completed and returned at the time of your oral exam.** Each student defends the poster individually.

Introduction

Tue, Jan. 20 – Guest Lecture – “Patient Safety- What Really Matters”

Dr. Kosseff serves as SSM Health Care’s Medical Director of System Clinical Improvement, as Physician Director of Quality Improvement at St. Mary's Hospital in Madison, WI, and was the chairperson of The Madison Patient Safety Collaborative for 2004. He practiced internal medicine at The Dean Health Systems in Madison, Wisconsin for 21 years. He is interested in the use of quality improvement techniques to change clinical practice and discovering ways to spread clinical improvements from one health care organization to another. He is also a certified Team STEPPS Master Trainer and has led

teamwork training for over 500 doctors and nurses in the past 2 years. In 2002, SSM Health Care won the Malcolm Baldrige National Quality Award, making it the first health care organization to receive the honor from the U.S. Commerce Department.

Tue, Jan. 20 – Introduction to PH703 Philosophy and Instructors

Chassin, M. R., & Galvin, R. W. (1998). The urgent need to improve health care quality. Institute of Medicine National Roundtable on Health Care Quality. *JAMA*, 280(11), 1000-1005.

Vicente KJ. What does it take? A case study of radical change toward patient safety. *Jt Comm J Qual Saf*. 2003;29(11):598-609.

Shi L, Singh DA. A Distinctive System of Health Care Delivery. *Delivering Health Care in America - A Systems Approach*. 3d ed. Sudbury, MA: Jones and Bartlett; 2004. (pp. 2-20 ONLY)

Conceptualization and Measurement: A Clinical Perspective **Module 1 - Maureen Smith**

Tue, Jan. 27– Lecture – Quality Assessment and the Professional Model

Anonymous. (2002). "Medical professionalism in the new millennium: a physician charter." *Ann Intern Med* 136(3): 243-6.

Shortell, S. M., T. M. Waters, et al. (1998). "Physicians as double agents: maintaining trust in an era of multiple accountabilities." *JAMA* 280(12): 1102-8.

Donabedian, A. (1988) The quality of care. How can it be assessed? *Journal of the American Medical Association*. 260:1743-8.

Tue, Jan. 27 – Lab – Measuring the Quality of Care for a Heart Attack Patient

We will abstract structural, process, and outcome measures of the quality of care from the hospital chart of a patient discharged with a diagnosis of acute myocardial infarction.

Improving care for acute myocardial infarction. (2002). CMRI.

Loeb, J. (2004). The current state of performance measurement in health care. *International Journal for Quality in Health Care*. 16(1):i5-i9.

Review www.wchq.org specifically for measures of “heart care.”

Identify where UW Hospitals and Clinics ranks within the Southern region on CMS/JCAHO measures of hospital quality for heart attack care (including Adult Smoking Cessation, ACE Medication, Aspirin at Discharge, Aspirin at Arrival, Beta Blocker at Discharge, Beta Blocker at Arrival, and PCI within 120 minutes).

Tue, Feb. 3 –Lecture – Performance Measurement – Who Does It?

Williams, S., Schmaltz, S., Morton, D., Koss, R., & Loeb, J. (2005). Quality of care in U.S. hospitals as reflected by standardized measures, 2002-2004. *The New England Journal of Medicine*. 353(3):255-264.

Schoenbaum, S. & Holmgren, A. (2006). The National Committee for Quality Assurance’s “The State of Health Care Quality.” *The Commonwealth Fund*. 969(1):1-6.

Roski, J. & Gregory, R. (2001). Performance measurement for ambulatory care: moving towards a new agenda. *International Journal for Quality in Health Care*. 13(6):447-453.

Review www.wchq.org specifically for measures of “diabetes care.”

Identify where Unity Health Insurance ranks within the Southern region on HEDIS measures of health plan quality for blood sugar control. (Unity Health Insurance is wholly owned by UW Health.)

Identify where UW Medical Foundation ranks within the Southern region on WCHQ measures of physician group quality for blood sugar control.

Recommended reading (Thompson, B. & Harris, J. (2001). Performance measures: are we measuring what matters? *The American Journal of Preventive Medicine*. 20(4):291-293.

Tue, Feb. 3 – Lecture – Pay for Performance – Are We Ready?

Doran, T., Fullwood, C., Gravelle, H., Reeves, D., Kontopantelis, E., Hiroeh, U., & Roland, M. (2006). Pay-for-performance programs in family practices in the United Kingdom. *The New England Journal of Medicine*. 355(4):375-384.

Epstein, A. (2006). Pay for performance in the United States and abroad. *The New England Journal of Medicine*. 355(4):406-408.

Rowe, J. (2006). Pay-for-performance and accountability: related themes in improving health care. *Annals of Internal Medicine*. 145:695-699.

Grossbart, S. (2006). What’s the return? Assessing the effect of “pay-for-performance” initiatives on the quality of care delivery. *Medical Care Research and Review*. 63(1):29S-48S.

Tue, Feb. 10 – Guest Lecture – Quality Assurance at Group Health Cooperative

Dr. Bartell is an internal medicine physician, Director of Clinical and Service Quality at Group Health Cooperative of South Central Wisconsin, and a clinical assistant professor in the Department of Internal Medicine at the University of Wisconsin. She has a Masters degree in Population Health Sciences from the University of Wisconsin. Her research interests have included health care access and quality, clinical guidelines, and disease management.

Tue, Feb. 10 – Measuring and Improving Performance

England, E. (2005). How interrupted time series analysis can evaluate guideline implementation. *The Pharmaceutical Journal*. 275:344-347.

Chan, P., Khalid, A., Longmore, L, et al. Hospital-wide code rates and mortality before and after implementation of rapid response team. *Journal of the American Medical Association*. 300(21):2506-2513.

Morgan, O., Griffiths, C., & Majeed, A. Interrupted time-series analysis of regulations to reduce paracetamol (acetaminophen) poisoning. *Public Library of Science: Medicine*. 4(4):0654-0659.

Tue, Feb. 17 – Transition from Module 1 to Module 2

Tue, Feb. 17 – Visit to the Trauma and Life Support Center at UW Hospital

Dr. Ken Wood, director of critical care medicine at UW Hospital, will give us a tour of the Trauma and Life Support Center (TLC), a 24-bed medical/surgical ICU at the UW Hospital. The TLC is a hybrid critical care unit: it is a closed unit for medical patients, but an open unit for the surgical patients. In an open system, patients receive care primarily from physicians with responsibilities outside the ICU. Critical care specialists are often available to provide expertise on a consultation basis. In a closed system, patients are cared for exclusively by critical-care specialists or teams that are closer on hand for both fine-tuning routine care and dealing with emergencies. About 2,000 patients are admitted in TLC per year;

half of them are ventilated. (Mechanical ventilation is the use of a mechanical device (machine) to inflate and deflate the lungs.) The most frequent diseases diagnosed are sepsis, multiple trauma, vascular surgery, head trauma and GI bleed.

Tue, Feb. 17 – Guest Lecture – Measuring Quality in Critical Care

Dr. Wood, director of critical care at the UW Hospital, will give a presentation on measures of quality of care in the domain of critical care medicine. Dr. Wood will draw on his extensive experience and expertise in measurement of quality in critical care units.

Conceptualization and Measurement – A Systems Engineering Perspective ***Module 2 – Pascale Carayon***

Tue, Feb. 24 – Lecture – Systems Engineering and Quality: Structure and Process

Carayon, P., Hundt, A. S., Karsh, B.-T., Gurses, A. P., Alvarado, C. J., Smith, M., and Brennan, P.F.. (2006). Work system design for patient safety: The SEIPS model. *Quality & Safety in Health Care*, 15(Suppl I), i50-i58.

Shortell, S. M., Zimmerman, J. E., Rousseau, D. M., Gillies, R. R., Wagner, D. P., Draper, E. A., et al. (1994). The performance of intensive care units: Does good management make a difference? *Medical Care*, 32(5), 508-525.

Carayon, P., Schultz, K. and Hundt, A.S. “Wrong site surgery in outpatient settings: The case for a human factors system analysis of the outpatient surgery process” *The Joint Commission Journal on Quality and Safety*, July 2004, vol.20, no.7, 405-410.

Carayon, P., Gurses, A. P., Hundt, A. S., Ayoub, P., & Alvarado, C. J. (2005). Performance obstacles and facilitators of healthcare providers. In C. Korunka & P. Hoffmann (Eds.), *Change and Quality in Human Service Work* (Vol. Volume 4, pp. 257-276). Munchen, Germany: Hampp Publishers.

Tue, Mar. 3 -Guest Lecture – Creating the Affinity Medical Home

Dr. Erik A. Emaus DO, CPE, President, Affinity Medical Group, will give a presentation on the journey of Affinity toward the implementation of the Medical Home concept.

Tue, Mar 3 - Discussion about the Medical Home

Based on the presentation by Dr. Emaus and the readings, we will identify the structural and process issues related to the Medical Home concept.

Rosenthal, T.C. (2008). The medical home; Growing evidence to support a new approach to primary care. *Journal of the American Board of Family Medicine*, 21: 427-440.

Berenson, R.A., Hammons, T., Gans, D.N., Zuckerman, S., Merrell, K., Underwood, W.S., and Williams, A.F. (2008). A house is not a home: Keeping patients at the center of practice redesign. *Health Affairs*, 27(5): 1219-1230.

Tue, Mar. 10 - Case Study – Work System and Process Analysis in Outpatient Surgery

We will apply the systems engineering perspective and the SEIPS model of work system and patient safety to outpatient surgery. We will use the SEIPS model to analyze observation data on the experience of a patient at an outpatient surgery center.

Carayon, P., Alvarado, C. J., Hundt, A. S., Springman, S., & Ayoub, P. (2006). Patient safety in outpatient surgery: The viewpoint of the healthcare providers. *Ergonomics*, 49(5-6), 470-485.

Schultz, K., Carayon, P., Hundt, A.S. and Springman, S.R. "Care transitions in the outpatient surgery preoperative process: Facilitators and obstacles to information flow and their consequences" *Cognition, Technology and Work*, 2007, 9(4): 219-231.

Tue, Mar. 10 - Organizational Change and System Redesign

Carayon, P., Wetterneck, T.B., Hundt, A.S., Rough, S. and Schroeder, M. Continuous technology implementation in health care: The case of advanced IV infusion pump technology. In: Klaus J. Zink, ed., *Corporate Sustainability as a Challenge for Comprehensive Management*, 2008.

Carayon, P., Smith, P., Hundt, A.S., Kuruchittham, V. and Li, Q. "Implementation of an Electronic Health Records system in a small clinic" to be published in *Behaviour and Information Technology*, 2009.

Quality Improvement by Changing Provider Behavior *Module 3 – Christopher Crnich*

Tue, Mar. 17 – Spring Break

Tue, Mar. 24 – Guest Lecture – Clinical Practice Guideline Development

Rita McCormick is a registered nurse and certified infection control practitioner at the University of Wisconsin. Rita is a past member of the Center for Disease Control and Prevention Healthcare Infection Control Practices Advisory Committee (HICPAC). She has been actively involved in the development and dissemination of a number of clinical practice guidelines, including ones that cover hand hygiene and the insertion and maintenance of intravascular catheters.

Tue, Mar. 24 – Do Clinical Practice Guidelines Improve the Quality of Patient Care?

Menendez, R., D. Ferrando, et al. (2002). "Influence of deviation from guidelines on the outcome of community-acquired pneumonia." *Chest* **122**(2): 612-7

Bahtsevani, C., G. Uden, et al. (2004). "Outcomes of evidence-based clinical practice guidelines: a systematic review." *Int J Technol Assess Health Care* 20(4): 427-33.

Cabana, M., Rand, S., et al. (1999) Why don't physicians follow clinical practice guidelines?" *JAMA* 282:1458-1465.

Boyd C. M., Darer J., Boulton C., et al. (2005) Clinical practice guidelines and quality of care for older patients with multiple comorbid diseases: implications for pay for performance. *JAMA* 294(6): 716-24.

Tue, Mar. 31 – Beyond Guidelines: Cognitive Theories of Behavior Modification

Kretzer, E. K. and E. L. Larson (1998). "Behavioral interventions to improve infection control practices." *American Journal of Infection Control* 26(3): 245-253.

O'Boyle, C. A., S. J. Henly, et al. (2001). "Understanding adherence to hand hygiene recommendations: The theory of planned behavior." *American Journal of Infection Control* 29(6): 352-360.

Tue, Mar. 31 – Making Behavior Modifications Stick: What Works?

- Larson, E. L., E. Early, et al. (2000). "An organizational climate intervention associated with increased handwashing and decreased nosocomial infections." Behavioral Medicine 26(1): 14-22.
- Lankford, M. G., T. R. Zembower, et al. (2003). "Influence of role models and hospital design on hand hygiene of health care workers." Emerging Infectious Diseases 9(2): 217-223.
- Mah, M. W., S. Deshpande, et al. (2006). "Social marketing: A behavior change technology for infection control." American Journal of Infection Control 34(7): 452-457.
- Naikoba, S. and A. Hayward (2001). "The effectiveness of interventions aimed at increasing handwashing in healthcare workers - a systematic review." J Hosp Infect 47(3): 173-80.
- Grol, R. and J. Grimshaw (2003). "From best evidence to best practice: effective implementation of change in patients' care." Lancet 362(9391): 1225-30.
- Safdar N., Abad C. Educational interventions for prevention of healthcare-associated infection: a systematic review. *Crit Care Med* 2008; 36(3): 933-40

Tue, Apr. 7 – Common Pitfalls in Quality Improvement Research

- Pronovost, P., D. Needham, et al. (2006). "An intervention to decrease catheter-related bloodstream infections in the ICU." New England Journal of Medicine 355(26): 2725-32. We will examine our selected case study from the perspective of modification of caregiver behavior in improving quality.
- Schwartz, D. N., H. Abiad, et al. (2007). "An Educational Intervention to Improve Antimicrobial Use in a Hospital-Based Long-Term Care Facility." Journal Of The American Geriatrics Society 55(8): 1236-1242.
- Aldeyab, M. A., D. L. Monnet, et al. (2008). "Modeling the impact of antibiotic use and infection control practices on the incidence of hospital-acquired methicillin-resistant Staphylococcus aureus: a time-series analysis." The Journal of antimicrobial chemotherapy 62(3): 593-600.
- Cooper, B. S., S. P. Stone, et al. (2003). "Systematic review of isolation policies in the hospital management of methicillin-resistant Staphylococcus aureus: a review of the literature with epidemiological and economic modeling." Health Technology Assessment (Winchester, England) 7(39): 1-194. **CHAPTER 2 (Pages 5 – 15) IS THE ONLY REQUIRED READING FROM THIS REFERENCE.**

Tue, Apr. 7 – Lab

We will apply what we have learned about modification strategies to improvement of oral hygiene in mechanically ventilated patients in an ICU.

- Mori, H., H. Hirasawa, et al. (2006). "Oral care reduces incidence of ventilator-associated pneumonia in ICU populations." Intensive Care Med 32(2): 230-6.
- Binkley, C., L. A. Furr, et al. (2004). "Survey of oral care practices in US intensive care units." Am J Infect Control 32(3): 161-9.

Technological Design and Implementation
Module 4 – Tosha Wetterneck

Tue, Apr. 14 – Lecture – The Promise of the Technological Solution in Health Care

Bates, D., Cohen, M., Leape, L., Overhage, M., Shabot, M., Sheridan, T. Reducing the frequency of errors in medicine using information technology. *J Am Med Inform Assoc*, 8: 299-308. 2001.

Han, Y. Y., Carcillo, J. A., Venkataraman, S. T., Clark, R. S. B., Watson, R. S., Nguyen, T. C., et al. (2005). Unexpected increased mortality after implementation of a commercially sold computerized physician order entry system. *Pediatrics*, 116(6), 1506-1512.

Koppel, R., Metlay, J. P., Cohen, A., Abaluck, B., Localio, A. R., Kimmel, S. E., et al. (2005). Role of computerized physician order entry systems in facilitating medication errors. *JAMA-Journal of the American Medical Association*, 293, 1197-1203.

Tue, Apr. 14 – Lecture – Technology Design

Parasuraman, R., Sheridan, T. B., and Wickens, C. D. (2000) A Model for Types and Levels of Human Interaction with Automation. *IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS—PART A: SYSTEMS AND HUMANS*, 30(3), 286-297.

Sawyer, D. (1996). Do it by design: an introduction to human factors in medical devices. US Food and Drug Administration. Pages 1-32.

Tue, Apr. 21 – Technology Implementation

Ash, J., Berg, M., Coiera, E. Some unintended consequences of information technology in health care: the nature of patient care information system-related errors. *J Am Med Inform Assoc*, 11: 104-112. 2004.

Holden, R. J. and Karsh, B. (2007). A theoretical model of health information technology behavior. *Behaviour and Information Technology*, In Press

Karsh, B. Holden, R. (2006). New technology implementation in health care. In P. Carayon (Ed.). *Handbook of Human Factors and Ergonomics in Patient Safety*. 393-410.

Tue, Apr. 21 – Lecture – Technology Use “in situ”

Carayon P, Wetterneck TB, Hundt AS, Ozkaynak M, DeSilvey J, Ludwig B, Ram P, Rough S. Evaluation of nurse interaction with bar code medication administration technology in the work environment. *J Patient Saf* 2007;3(1):34-42.

Koppel R, Wetterneck T, Telles J, Karsh B. Workarounds to barcode medication administration systems: their occurrences, causes, and threats to patient safety. *JAMIA* 2008;15(4):408-423.

Wetterneck TB, Skibinski KA, Roberts TL, Kleppin SM, Schroeder ME, Enloe M, Rough SS, Hundt AS, Carayon P. Using failure mode and effects analysis to plan implementation of Smart I.V. pump technology. *Am J Health-Syst Pharm* 2006;63:1528-38.

Tue, Apr. 28 – Guest Lecture – Technology implementation strategies to ensure quality solutions (Dr. Bruce Slater – Dept of Biostatistics and Medical Informatics)

Implementation of a mission critical software application is much more than programming and creating databases. Careful analysis of existing workflow and work culture and consideration of these factors in software and user interface design can make the difference between a successful and sub-optimal result. Dr. Slater will discuss the organization perspective on design and implementation of a new electronic health record with Computer Provider Order Entry (HealthLink) at the University of Wisconsin Hospital and Clinics.

Tue, Apr. 28 – Technology Use “in situ” – The User Perspective (End User Discussion Panel TBD)

End-user discussion panel on HealthLink technology use in practice, the sociotechnical issues surrounding each of the technology and how the HealthLink design enhances and changes the health care delivery.

Conclusion

Tue, May 5 - Student presentations